CLAIMS

WE CLAIM:

1. A method of stabilizing a neural cell comprising:
   (a) providing a pluripotent mammalian cell;
   (b) culturing the pluripotent mammalian cell to produce a neural cell; and
   (c) contacting the neural cell with a MEDII conditioned medium for greater than 2 passages to thereby stabilize the neural cell.
2. The method of Claim 1, whereby step (b) occurs in the presence of a feeder cell layer.
3. The method of Claim 1 wherein step (b) comprises the use of a medium comprising a compound selected from the group consisting of KSR, GMEM, HES medium, or any combination thereof.
4. The method of Claim 1, further comprising an additional step of contacting the cells with a differentiating medium prior to contact with the MEDII conditioned medium.
5. The method of Claim 4, wherein the differentiating medium is essentially serum free.
6. The method of Claim 4 where the differentiating medium further comprises a base salt solution.
7. The method of Claim 6 where the base salt solution selected from the group consisting of DMEM, GMEM or any combination thereof.
8. The method of Claim 4 wherein the differentiating medium further comprises supplements selected from the group consisting of N2, FGF2, or any combination thereof.
9. The method of Claim 1, wherein the MEDII conditioned medium is essentially serum free.
10. The method of Claim 1, wherein the mammalian pluripotent cell is selected from the group consisting of an embryonic stem cell, an ICM/epiblast cell, a primitive ectoderm cell, a primordial germ cell, and a teratocarcinoma cell.
11. The method of Claim 10, wherein the mammalian pluripotent cell is a human embryonic stem cell.

12. The method of Claim 2, wherein the feeder cell layer comprises a stromal cell.

13. The method of Claim 12, wherein the stromal cell is a murine stromal cell.

14. The method of Claim 13, wherein the stromal cell is a PA6 cell.

15. The method of Claim 12, wherein the stromal cell is human stromal cell.

16. The method of any one of Claims 1-15, wherein the MEDII conditioned medium is a HepG2 conditioned medium.

17. The method of any one of Claims 1-15, wherein the MEDII conditioned medium comprises a biologically active component selected from the group consisting of:
    (a) a large molecular weight extracellular matrix protein;
    (b) a low molecular weight component comprising proline;
    (c) a biologically active fragment of any of the proteins or components described in a) or b);
    (d) an analog of any of the proteins or components described in a) or b);
    (e) a neural inducing factor; and
    (f) any combination thereof.

18. The method of any one of Claims 1-15, wherein the MEDII conditioned medium comprises a large molecular weight extracellular matrix protein.

19. The method of Claim 1 wherein the neural cell is plated prior to contact with the MEDII conditioned medium.

20. The method of Claim 19, wherein the neural cell is plated with a feeder cell layer prior to contact with the MEDII conditioned medium.

21. The method of Claim 19, wherein the neural cell is plated on a substrate prior to contact with the MEDII conditioned medium.

22. The method of Claim 1, further comprising the step of isolating the neural cell after step (b) prior to contacting the neural cell with the MEDII conditioned medium.

23. The method of Claim 22, wherein isolating the neural cell comprises manually selecting the neural cell.

24. The method of Claim 1, further comprising the subsequent step of differentiating the stabilized neural cell to produce a differentiated neural cell.

25. The method of Claim 24, wherein the differentiated neural cell is TH positive, and expresses DAT and V-MAT.

26. The method of Claim 25, wherein a population of differentiated neural cells is produced, and at least 50% of the population of differentiated neural cells is TH positive.

27. The method of Claim 24, wherein the differentiated neural cell expresses glutamate decarboxylase.

28. The method of Claim 24, wherein the differentiated neural cell expresses GFAP.

29. The method of any one of Claims 1-28, wherein the neural cell is a neural progenitor cell.

30. A method of stabilizing a neural cell comprising:
    (a) providing a mammalian neural cell; and
    (b) contacting the neural cell with a MEDII conditioned medium for greater than 2 passages to thereby stabilize the neural cell.

31. The method of Claim 30, wherein the neural cell is plated prior to contact with the MEDII conditioned medium.

32. The method of Claim 31, wherein the neural cell is plated with a feeder cell layer prior to contact with the MEDII conditioned medium.

33. The method of Claim 32, wherein the feeder cell layer comprises a stromal cell.

34. The method of Claim 33, wherein the stromal cell is human stromal cell.

35. The method of Claim 31, wherein the neural cell is plated on a substrate prior to contact with the MEDII conditioned medium.

36. The method of Claim 30, wherein the neural cell is a neural progenitor cell.

37. The method of Claim 30, wherein the mammalian neural cell is a human neural cell.

38. The method of any one of Claims 30-37, wherein the MEDII conditioned medium is a HepG2 conditioned medium.

39. The method of any one of Claims 30-37, wherein the MEDII conditioned medium is essentially serum free.

40. The method of any one of Claims 30-37, wherein the MEDII conditioned medium comprises at least a biologically active component selected from the group consisting of:
    (a) a large molecular weight extracellular matrix protein;
    (b) a low molecular weight component comprising proline;
    (c) a biologically active fragment of any of the proteins or components described in a) or b);
    (d) an analog of any of the proteins or components described in a) or b);
    (e) a neural inducing factor; and
    (f) any combination thereof.

41. The method of Claim 30, further comprising the additional step of differentiating the stabilized neural cell to produce a differentiated neural cell.

42. The method of Claim 41, wherein the differentiated neural cell is TH positive, and expresses DAT and V-MAT.

43. The method of Claim 42, wherein a population of differentiated neural cells is produced, and at least 50% of the population of differentiated neural cells are TH positive.

44. The method of Claim 41, wherein the differentiated neural cell expresses glutamate decarboxylase.

45. The method of Claim 41, wherein the differentiated neural cell expresses GFAP.

46. A composition comprising an isolated neural cell, wherein the cell expresses nestin, wherein the cell has been stabilized by contact with MEDII conditioned medium for greater than 2 passages, and wherein the cell can differentiate into more than one type of further differentiated neural cell.

47. The composition of Claim 46, wherein the cell has been stabilized by contact with MEDII conditioned medium for greater than 5 passages.

48. The composition of Claim 46, wherein the cell has been stabilized by contact with MEDII conditioned medium for greater than 10 passages.

49. The composition of Claim 46, wherein the cell has been stabilized by contact with MEDII conditioned medium for greater than 20 passages.

50. The composition of Claim 46, wherein the cell has been stabilized by contact with MEDII conditioned medium for greater than 30 passages.

51. The composition of Claim 46, wherein the cell has been stabilized by contact with MEDII conditioned medium for more than one year.

52. The composition of Claim 46, wherein the neural cell is a neural progenitor cell.

53. The composition of any one of Claims 46-52, wherein the MEDII conditioned medium is a HepG2 conditioned medium.

54. The composition of any one of Claims 46-52, wherein the MEDII conditioned medium is essentially serum free.

55. The composition of any one of Claims 46-52, wherein the MEDII conditioned medium comprises at least a biologically active component selected from the group consisting of:
    (a) a large molecular weight extracellular matrix protein;
    (b) a low molecular weight component comprising proline;
    (c) a biologically active fragment of any of the proteins or components described in a) or b);
    (d) an analog of any of the proteins or components described in a) or b);
    (e) a neural inducing factor; and
    (f) any combination thereof.